# Origin and Evolution of the Universe, Fall 2003
## Assignment 6, Due November 13

Readings: The Whole Shebang, Chapters 5 and 6.

No need to write a 2-page essay for this week, but you have to write down which topic you choose for your final project. Below is a list of suggestions. Each consists of a 15-page essay. Your choice of topic is due next week, November 13, 2003. The final paper is due December 2, 2003. In addition, you will each make a short presentation (about 15 minutes) on the topic of your choice on November 25 and December 2.

- Write about string theory, and its role in cosmology. Suggested reference: The Elegant Universe, by Brian Greene. See also http://www.pbs.org/wgbh/nova/elegant

- Write about the theory of special and/or general relativity. Interesting phenomena include black holes, time machines, singularities, etc. Suggested reference: Black Holes and Time Warps: Einstein's Outrageous Legacy, by Kip Thorne.

- Write about dark energy. Suggested reference: The Extravagant Universe, by Robert Kirshner.

- Write about the theory of inflation. Suggested reference: The Inflationary Universe, by Alan Guth.

- Write about cosmology and religion. Not sure what reference to suggest!

- Imagine you are a cosmologist, write a proposal to the National Science Foundation (15 pages long) to fund an experiment that you would like to do. Describe the experiment and why this would be interesting.

- Write an essay on the arrow of time.

- Write an essay on the beginning of the universe.

- Write about dark matter.

- Write about extra dimensions. Suggested reference: The Elegant Universe, by Brian Greene.

- Write about the cosmic microwave background. Useful reference: http://background.uchicago.edu/~whu/beginners/introduction.html

- Write an essay about cosmic coincidences and the anthropic principle. Maybe useful: Just Six Numbers, by Martin Rees.

- Write an essay on any other topic of your choice. However, you need to clear it with me first within a week, either via email or by making arrangement to meet me.